

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Amendment of Parts 73 and 74 of the)	
Commission's Rules to Establish Rules for)	MB Docket No. 03-185
Digital Low Power Television, Television)	
Translator, and Television Booster Stations)	
And to Amend the Rules for Digital Class A)	
Television Stations)	

To: The Commission

Reply Comments
Of
Byron W. St. Clair

I am regularly engaged in finding replacement channels for displaced LPTV and TV translator stations and doing interference studies for stations that wish to increase their coverage. I am personally familiar with retrieving data from the FCC's database and doing interference calculations both conventional and those following the OET Bulletin 69 procedures. These reply comments are directed to some suggestions by others that are unworkable or restrictive to the point of being counter productive.

CALL SIGNS

1. Several commenters including Abacus at their para. 58 comment on appropriate calls signs for digital Class A, LPTV and TV translator stations. No consensus emerges. As a person who works regularly with the FCC database I can state from experience that it is essential for the basic call sign for these stations to be identifiable as to type and whether analog or digital. Only with full knowledge of its type can an existing station be properly protected when one is doing interference calculations as are required for new or modification applications.

Some commenters asked that the call signs for Class A and LPTV stations not have any special feature that identified them as different from full service stations. This is simply not workable and the call sign must identify the type of station **in the database and paper records such as CP's and licenses**. Specifically it is suggested that the official call signs on construction permits, licenses and in databases be as follows:

Analog translator - no change (K23XX)

Digital translator - add DT (K23XX-DT)

Analog LPTV - no change (K23XX or KXXX-LP)

Digital LPTV - conventional call add DT (K23XX-DT)

four letter call change LP to LD (KXXX-LD)

Analog Class A - no change (K23XX-CA or KXXX-CA)

Digital Class A - change suffix to A (K23XX-AD or KXXX-AD)

The use of “D” alone has been avoided because dismissed applications related to stations that already have call signs are carried in CDBS with the D in front of the call sign (DK23XX).

However, to satisfy the concerns of the commenters that claim having a call sign that distinguishes them from full service stations is a disadvantage I propose that the stations above be allowed to identify themselves on-the-air and in commercial matters with only the basic part of the call sign, presumably a four letter version e.g. KXXX provided this does not create a conflict with a full service station with the same call sign.

ADJACENT CHANNEL OPERATION AND CO-LOCATION

There is universal agreement that “co-location” is necessary if two stations are to serve the same area using adjacent channels. There is no agreement, however, as to how to define “co-location”. For instance AFCCE in its comments suggests that a separation of 2 km or less should be considered co-located.¹ The engineering reason for “co-locating” adjacent channel stations is to ensure that the power ratio of the two stations arriving **at any receiving site** is closely the same as the original ratio of the transmitted signals. If there are viewers close to one or the other of the transmitting sites only a small separation can be tolerated. If the nearest viewers are ten kilometers away it is evident from geometric considerations that a greater separation can be tolerated. The height of the transmitting antennas above the nearby population coupled with the vertical patterns of the transmitting antennas must also be considered in determining if the ratio will remain reasonably constant in populated areas. Thus, I propose that **no specific distance** be associated with the term “co-located”. Rather the determination of whether two adjacent channel stations can operate without interference be on the basis of engineering calculations. The calculations could be on the basis of a determination that the threshold signal ratio for interference would not be exceeded within a station's protected contour. In most cases the calculations would be one way i. e. to show that a new station would not cause interference to an earlier station. For instance in the case of analog LPTV or TV translator station the requirement

¹Comments of AFCCE in this docket, ¶ 20: “For administrative purposes, we suggest that co-located facilities be defined as the transmitter site of the stations located 2 kilometers or less from each other.”

would be to show that an existing UHF station would be protected to the +15 dB ratio of §74.705(d)4 for a protected full service station or §74.707(d)(4) for a protected LPTV or TV translator station. Alternatively, the lost population analysis in accordance with OET Bulletin 69 could be used. If either criteria is met the new station meets the intent of co-location with respect to the protected station.

ANTENNA PATTERNS

Many commenters have noted the scarcity of spectrum for the prospective digital LPTV and TV translator stations. The acknowledgment of this scarcity leads inescapably to the conclusion that the **best available technology must be used** in the interference studies that determine which stations can be built. Inaccurate calculations will artificially limit the number of such stations. As pointed out in the comments of Mullaney Engineering, Inc.² the present practice of using vertical antenna patterns presumed to be typical of full service stations is not adequate. The use of these patterns may result in the failure to predict interference which will occur in practice or alternatively over predict interference unduly limiting the new stations. It is essential that the OET Bulletin 69 interference prediction procedures be modified to use the best technology. This means the actual vertical pattern of the transmitting antenna should be used coupled with the maximum ERP at any vertical angle.³ The FCC database of horizontal antenna patterns works very well and a similar database of vertical patterns for various sizes and configurations of antennas should be created. As is the practice with horizontal patterns an applicant should be able to specify a standard vertical pattern or submit a tabulation of the vertical pattern of his proposed antenna. To do less is to **short change the public** by unnecessarily limiting the number of LPTV and TV translator stations which can be built.

The Mullaney Engineering comments contain the statement:⁴

²Comments of Mullaney Engineering, Inc. in this docket, page 4

³This is in contrast to the present procedure which uses a standard vertical pattern thought to be typical of that used by full service stations and the ERP on the horizon.

⁴Comments of Mullaney Engineering, Inc. in this docket, page 3 second paragraph.

“Unless the antenna manufacturer has certified that the directional antenna when mounted as proposed will actually produce deep nulls, a maximum suppression of 20 dB should be assumed. Many horizontal patterns contained in the Commission’s “off-the-shelf antenna pattern database show maximum suppressions (0.02 relative field) which are not achieved in practice.

The standard patterns in the FCC’s database including those with reduced rear patterns as referred to above have been used in many applications over a period exceeding 20 years. As far as I know there have been no instances of interference resulting from the use of an antenna with a reduced rear pattern as described by Mullaney’s comments. This proposal should be rejected following the “if it ain’t broke don’t fix it” philosophy and the current practice continued. To do otherwise would unduly limit new LPTV and TV translator stations.

INTERFERENCE DETERMINATION METHODOLOGY

Fox Television⁵ proposes that the Commission abandon the current contour overlap approach to interference determination and rely solely on the full terrain method of OET Bulletin 69 (how be it with a new propagation model). The Fox comments specifically state:

“ The current approach [contour overlap] is overly conservative and would compel the Commission to unnecessarily reject applications for new stations even if they would not cause any actual interference.”

Long experience with the contour overlap procedure establishes with certainty that it is indeed conservative. However, it remains useful as a tool to separate clearly non-interfering applications from those that need careful study. Interference contours overlaps can be determined with simple computer programs or even manually. The procedure is thus available to parties without the expensive computer programs required to run OET Bulletin 69 studies. Today LPTV and TV translator applications are effectively processed in two steps. Interference contours are calculated and if there is no overlap there is no further study. If there is contour overlap then the terrain dependent procedure of OET Bulletin 69 is used to determine more accurately if there will be interference, although strictly speaking this second step is considered a

⁵Comments of Fox Television Stations, Inc. and Fox Broadcasting Company in this docket, page 9

terrain shielding waiver.

I propose that the defacto two step process in use today **be made the normal procedure** without the second step being considered a terrain shielding waiver. Little or no modification of the Commission's analysis program will be required. Under one option included in the program as it exists today interference contour overlaps are calculated and if there are none the program stops. If there are contour overlaps it proceeds with the full terrain dependent calculation. Also I strongly urge that the 2% / 10% interference limit used in full service calculations an proposed by several commenters in the docket be adopted as the interference limit. This much leeway is needed if all displaced LPTV and TV translator stations are to find new homes and most are to get companion digital translators.

ANALOG TO DIGITAL CONVERSION

Greg Best Consulting Inc. states:⁶

I agree that a digital conversion of an existing analog license or construction permit should be considered a minor change. The first come first served basis should apply. Perhaps other procedures of applying for conversions could be examined such as each week a new DMA is allowed to submit its applications or several states are allowed each month."

As pointed out in the comments of the National Translator Association and on-channel conversion of an existing LPTV or TV translator station results in no interference increase provided the average digital power is not greater than 25% (-6dB) of the licenses analog power. The power of 25% is typically will be achieved when an analog transmitter is converted to digital so such a conversion is expected to common in those instances where a companion digital channel is not utilized. I endorse the NTA's request that such a change be an "at will" change with only a requirement for notification to the Commission. Any other change which would meet the current definition of a minor change coupled with the change to digital operation should be permitted at any time as are analog minor changes, but only after there is a completed window for companion digital LPTV and TV translator station applications and these applications are

⁶Comments of Greg Best Consulting, Inc. in this docket, page 8, "Section 92".

entered into and available from the Commission's database.

Suggestions for accepting applications on a staggered basis based on geographical delineations have been considered in the past and generally rejected because an application in one area may preclude an application in an adjoining area.

INTERFERENCE CONSIDERATIONS

The NAB and the MSTV are opposed in general to companion digital stations for class A, LPTV and TV translator stations and allow such stations to come into the digital era only by converting on channel⁷ In addition they have proposed extremely restrictive and regressive rules for the protection of full service stations.

Their comments state:

“In developing low power television service two decades ago, the Commission correctly recognized that to protect full power service adequately it had to adopt a number of different technical criteria rather than relying solely on D/U ratios. Specifically the Commission adopted a number of criteria such as restricting the operation of LPTV stations inside the service contour of full power stations and applying D/U ratios only outside of the contour”

It is true that the original LPTV rules specified both location and interference ratio criteria, and this represented an advance over the way TV translators had previously been authorized. The whole concept of calculated interference or lack thereof was new and it was appropriate to be cautious. However, it soon became apparent that the original LPTV rules were overly restrictive and terrain shielding waivers became common. The next step in the evolution was the advent of more sophisticated signal calculations as specified in OET Bulletin 69. Calculations of lost population using this more up-to-date procedure are now routine and no problems are resulting. As outlined above in the section “INTERFERENCE DETERMINATION METHODOLOGY” the use of protected and interference contours backed up by terrain dependent calculations in accordance with OET Bulletin 69 is working well.

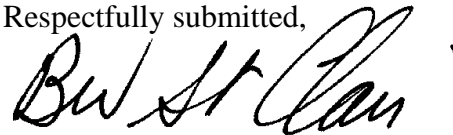
⁷Comment of The Association for Maximum Service Television, Inc. and The National Association of Broadcasters filed in this docket, pages 12 to 17

The MSTV/NAB propose restrictions on the location of digital Class A, LPTV or translator stations operating on 2,3,4, 7 or 8 channels removed from a full power analog or digital station.⁸ Yet these taboos are all related to intermodulation products associated with strong signals, far above those associated with these types of stations overloading the input circuits of receivers. Waivers of these taboos (except 8 channel separation which is not mentioned in the current rules) are common based on OET Bulletin 69 calculations as there are no known ill effects.

These commenters would greatly restrict the location of Class A, LPTV or translator stations operating fourteen or fifteen channels above a full service station.⁹ Yet a signal fourteen or fifteen channels above another UHF station can be considerably stronger than the protected station without causing interference (for instance analog into analog: 14 channels 25 dB above, 15 channels 9 dB above). It is well recognized that one of the safest places to use a channel fourteen or fifteen channels above another station to be co-located with it. The commenters proposal would foreclose this opportunity:

To revert to more restrictive requirements as proposed by MSTV/NAB would unnecessarily reduce the survival rate of displaced analog LPTV and TV translators and inhibit the growth of a full measure of digital companion stations.

Respectfully submitted,



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⁸ Ibid. page 16, second indented paragraph

⁹ Ibid. page 16, third indented paragraph